

Appl. No. 10/714,985
Reply to Office Action of February 2, 2005

Attorney Docket No. 2003.0299/24061.514
Customer No. 42717

REMARKS

Claims 1-24 are present in the application. In view of the remarks that follow, Applicants respectfully request reconsideration of the application.

Allowable Subject Matter

Noted with appreciation is the indication in the Office Action that dependent Claim 23 is directed to allowable subject matter, and would be allowed if rewritten in independent form. Claim 23 depends from independent Claim 20, and Claim 20 is believed to be allowable for reasons discussed later. Accordingly, it is believed to be unnecessary to separately place Claim 23 in independent form at this time.

Comment on Statement of Reasons for Allowance

In the middle of page 8 of the Office Action, the Examiner offers a reason why Claim 23 is considered to be allowable. Applicants agree that Claim 23 recites allowable subject matter. However, Applicants do not agree in all respects with the stated reason. For example, Applicants believe that the stated reason should not be interpreted to mean that it is the only reason supporting the allowability of Claim 23, and that there are no other reasons that separately and independently support the allowability of Claim 23.

Independent Claim 1

Independent Claim 1 stands rejected under 35 USC §103, on the ground that Claim 1 would be obvious in view of Zutshi U.S. Patent No. 6,620,027 and Tsai U.S. Publication No. 2003/0013306. This ground of rejection is respectfully traversed. In this regard, the PTO recognizes in MPEP §2142 that:

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The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Zutshi and Tsai do not establish a *prima facie* case of obviousness under §103 with respect to Claim 1, for the mutually exclusive reasons that are discussed below.

ARGUMENTS PRESENTED IN APPLICANTS' LAST RESPONSE

In the section of the Office Action that bridges pages 8-9, the Examiner offers a reply to the arguments in Applicants' last Response, including a statement that:

Applicant fails to argue that the process limitations in the claimed invention differs from the cited references. Merely argue that the rule of 103 rejection over the MPEP does not make the claimed invention allowable.

There are two problems with this statement. More specifically, the first problem with this statement is that it is wrong. Contrary to the Examiner's assertion in this statement, Applicants actually did argue that the limitations in Applicants' Claim 1 are distinct from the cited references (for example on page 9 of Applicants' last Response).

The second problem is that, with respect to Applicants' argument that the §103 rejection fails to comply with requirements of the MPEP, the Examiner asserts that this type of argument is not sufficient to establish the allowability of the claims. However, Applicants respectfully that the Examiner's position is contrary to PTO policy. More specifically, and as noted above, MPEP §2142 specifies that:

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The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

In other words, the MPEP establishes a two-step process. The first step must be completed by the Examiner, or else the second step does not apply to Applicants. The first step is that the Examiner must establish a *prima facie* case of obviousness. If the Examiner does so, then a valid §103 rejection is created, and so the second step takes effect and the applicant becomes obligated to submit evidence of non-obviousness. On the other hand, if the Examiner fails to establish a *prima facie* case of obviousness, then the first step has not been met and there is no valid §103 rejection, so the second step does not apply, because Applicants are not required to reply to a rejection that is not valid and thus does not really exist. Stated differently, and contrary to the assertions in the Office Action, if the §103 rejection does not meet the requirements set forth in the MPEP, then the §103 rejection is defective, and the claimed invention is in fact allowable (without any need for Applicants to discuss differences between the claims and the cited references).

THE OFFICE ACTION FAILS TO CLEARLY EXPLAIN THE BASIS FOR THE REJECTION

At lines 15-17 on page 2, the Office Action indicates that Claim 1 is rejected under §103 in view of both Zutshi and Tsai. Then, from line 18 on page 2 through line 12 on page 3, the Office Action provides an explanation of why Claim 1 is rejected. However, this explanation discusses only Zutshi, and never even mentions Tsai. In particular, this explanation of the rejection of Claim 1 (1) does not indicate which limitations from Claim 1 are not found in Zutshi, (2) does not indicate where Tsai discloses the limitations of Claim 1 that are not found in Zutshi, (3) does not indicate how teachings from both Zutshi and Tsai would have to be combined in

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order to meet the limitations of Claim 1, and (4) does not explain why one of ordinary skill in the art at the time the invention was made would have been motivated to modify Zutshi in view of Tsai. (Tsai is discussed at a later point in the Office Action, but only in association with certain dependent claims, and not any independent claim).

With this in mind, it is respectfully submitted that the §103 rejection of Claim 1 fails to satisfy the PTO's requirements for a §103 rejection. In more detail, MPEP §706.02(j) discusses what an examiner must do in order to establish a *prima facie* case of obviousness under 35 U.S.C. §103, and includes the following explanation:

35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:

(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,

(B) the difference or differences in the claim over the applied reference(s),

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.

In the present situation, the §103 rejection of Claim 1 fails to satisfy any of these four requirements, for reasons that are discussed separately below for each of the four requirements.

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First, the rejection fails to satisfy requirement (A). In particular, the Office Action states at lines 15-17 on page 2 that the rejection of Claim 1 is based on Zutshi and Tsai, but the ensuing explanation regarding Claim 1 runs from line 18 on page 2 through line 12 on page 3, and discusses only Zutshi. This explanation never mentions what teachings from Tsai are being relied upon, and thus fails to meet the PTO requirement of identifying "the relevant teachings of the prior art relied upon".

Further, the rejection fails to satisfy requirement (B). In particular, the explanation of the §103 rejection (from line 18 on page 2 through line 12 on page 3) discusses teachings that the Examiner believes are disclosed in the Zutshi publication, but never identifies any difference between Zutshi and the subject matter of Claim 1, or any difference between Tsai and the subject matter of Claim 1.

Moreover, the rejection fails to satisfy requirement (C), because the explanation of the rejection never identifies any proposed modification of Zutshi that would be needed to arrive at the subject matter of Claim 1.

In addition, the rejection fails to satisfy requirement (D), because the explanation of the rejection never discusses why one of ordinary skill in the art would have been motivated to make any modification to Zutshi in view of Tsai.

Applicants therefore respectfully submit that the §103 rejection of Claim 1 is completely defective, because it fails to satisfy any of the PTO's four specific requirements for a §103 rejection. As a result, Applicants are not able to understand what the rationale for the rejection is supposed to be, and thus are not required to try to respond to the rejection on the merits. Stated differently, the Examiner has failed to meet any of the various different requirements needed to establish a prima facie case of obviousness under §103. Consequently, as discussed in MPEP §2142, "the applicant is under no obligation to submit evidence of nonobviousness". For this reason alone, it is respectfully submitted that the pending §103 rejection must be withdrawn, and notice to that effect is respectfully requested.

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ZUTSHI DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

In lines 1-3 on page 3 of the Office Action, the Examiner refers to the portion of Zutshi running from line 66 in column 9 to line 10 in column 10, and asserts that this portion of Zutshi discloses "a first oxide polishing step". However, and contrary to the assertion in the Office Action, this portion of Zutshi is not disclosing an oxide polishing step. Instead, this portion of Zutshi is disclosing a procedure to remove some residual copper material from a barrier layer. No oxide material is involved at all.

In addition, in lines 5-6 on page 3 of the Office Action, the Examiner refers to the portion of Zutshi at lines 32-42 in column 10, and asserts that this portion of Zutshi discloses "a second oxide polishing step". However, and contrary to the assertion in the Office Action, this portion of Zutshi is not disclosing an oxide polishing step. Instead, this portion of Zutshi is disclosing a procedure to remove a barrier layer.

In contrast, the limitations of Applicants' Claim 1 include an express recitation of two separate polishing steps for an oxide material, as follows:

- (b) performing a first oxide polishing step at a first polish station in a polishing tool by using a polishing pad and a slurry on a platen to contact the top surface of said substrate;
- (c) rinsing the substrate with DI water;
- (d) performing a second oxide polishing step at said first polish station by using said polishing pad and a slurry; and
- (e) rinsing the substrate a second time with DI water.

The portions of Zutshi relied on in the Office Action relate to polishing of two completely different materials, neither of which is an oxide material, whereas Applicants' Claim 1 expressly recites two successive polishing steps that are each specific to an oxide material. Consequently, despite the fact that the Office Action fails to adequately explain the basis for the rejection that is

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supposedly based on both Zutshi and Tsai, it is nevertheless very clear that Zutshi does not teach what the Office Action says it does. Accordingly, it is respectfully submitted that the subject matter of Claim 1 is clearly not taught or suggested by the indicated portions of Zutshi, and notice to that effect is respectfully requested. For this independent reason alone, Applicants respectfully submit that Claim 1 is not obvious under §103 in view of Zutshi and Tsai, and notice to that effect is respectfully requested.

THE OFFICE ACTION OFFERS NO MOTIVATION FOR THE PROPOSED COMBINATION

There is yet another independent and compelling reason why Zutshi and Tsai cannot be combined under §103 to reject Claim 10. In this regard, MPEP §2142 provides that:

To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of applicant's disclosure must be put aside in reaching this determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

The MPEP further provides at § 2143.01 that:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way

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the apparatus is claimed, there must be a suggestion or motivation
in the reference to do so". (Emphasis in original).

Here, as discussed above, the Office Action does not even propose any modification to Zutshi in view of Tsai, much less offer any rationale as to why there would be motivation to make a modification. At lines 8-11 on page 3, the Office Action states that:

. . . it would be obvious to one [of] ordinary skill in the art to
polish and clean the second oxide layer for a second time with the
same process as using [sic] in the first oxide layer to form a planar
oxide layer and remove the contamination since it is well-known in
the art to repeat the same process for multiple effect.

This statement is inconsistent with other portions of the rejection of Claim 1. For example, this statement refers to polishing of first and second oxide layers. However, as discussed above, the Office Action relies on portions of Zutshi that respectively involve polishing of a copper material and polishing of a barrier layer. The Office Action does not rely on any portion of Zutshi that relates to polishing of an oxide layer, much less two different oxide layers. Consequently, in the above-quoted sentence discussing "first" and "second" oxide layers of Zutshi, it is not clear what the Office Action is talking about. Accordingly, for this independent reason alone, it is respectfully submitted that Claim 1 is not obvious under §103 in view of Zutshi and Tsai, and notice to that effect is respectfully requested.

In view of the various different reasons discussed above, it is respectfully submitted that the §103 rejection of Claim 1 based on Zutshi and Tsai is incomplete and defective, and in any event that Claim 1 is not rendered obvious under §103 by Zutshi and Tsai. Claim 1 is thus believed to be allowable, and notice to that effect is respectfully requested.

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Independent Claim 10

Independent Claim 10 stands rejected under 35 USC §103, on the ground that Claim 10 would be obvious in view of Zutshi and Tsai. This ground of rejection is respectfully traversed. In this regard, and as noted above, the PTO recognizes in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Zutshi and Tsai do not establish a *prima facie* case of obviousness under §103 with respect to Claim 10, for the mutually exclusive reasons that are discussed below.

ARGUMENTS PRESENTED IN APPLICANTS' LAST RESPONSE

In the section of the Office Action that bridges pages 8-9, the Examiner offers a reply to the arguments in Applicants' last Response, including a statement that:

Applicant fails to argue that the process limitations in the claimed invention differs from the cited references. Merely argue that the rule of 103 rejection over the MPEP does not make the claimed invention allowable.

In essence, with respect to Applicants' argument that the §103 rejection fails to comply with requirements of the MPEP, the Examiner asserts that this type of argument is not sufficient to establish the allowability of the claims. However, Applicants respectfully that the Examiner's

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position is contrary to PTO policy. More specifically, and as noted above, MPEP §2142 specifies that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

In other words, the MPEP establishes a two-step process. The first step must be completed by the Examiner, or else the second step does not apply to Applicants. The first step is that the Examiner must establish a *prima facie* case of obviousness. If the Examiner does so, then a valid §103 rejection is created, and so the second step takes effect and the applicant becomes obligated to submit evidence of non-obviousness. On the other hand, if the Examiner fails to establish a *prima facie* case of obviousness, then the first step has not been met and there is no valid §103 rejection, so the second step does not apply, because Applicants are not required to reply to a rejection that is not valid and thus does not really exist. Stated differently, and contrary to the assertions in the Office Action, if the §103 rejection does not meet the requirements set forth in the MPEP, then the §103 rejection is defective, and the claimed invention is in fact allowable (without any need for Applicants to discuss differences between the claims and the cited references).

THE OFFICE ACTION FAILS TO CLEARLY EXPLAIN THE BASIS FOR THE REJECTION

At lines 15-17 on page 2, the Office Action indicates that Claim 10 is rejected under §103 in view of both Zutshi and Tsai. Then, from line 19 on page 3 through line 8 on page 5, the Office Action provides an explanation of why Claim 10 is rejected. However, this explanation discusses only Zutshi, and never even mentions Tsai. In particular, this explanation of the rejection of Claim 10 (1) does not indicate which limitations from Claim 10 are not found in

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Zutshi, (2) does not indicate where Tsai discloses the limitations of Claim 10 that are not found in Zutshi, (3) does not indicate how teachings from both Zutshi and Tsai would have to be combined in order to meet the limitations of Claim 10, and (4) does not explain why one of ordinary skill in the art at the time the invention was made would have been motivated to modify Zutshi in view of Tsai.

With this in mind, it is respectfully submitted that the §103 rejection of Claim 10 fails to satisfy the PTO's requirements for a §103 rejection. In more detail, MPEP §706.02(j) discusses what an examiner must do in order to establish a prima facie case of obviousness under 35 U.S.C. §103, and includes the following explanation:

35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:

(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,

(B) the difference or differences in the claim over the applied reference(s),

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.

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In the present situation, the §103 rejection of Claim 10 fails to satisfy any of these four requirements, for reasons that are discussed separately below for each of the four requirements.

First, the rejection fails to satisfy requirement (A). In particular, the Office Action states at lines 15-17 on page 2 that the rejection of Claim 10 is based on Zutshi and Tsai, but the ensuing explanation regarding Claim 10 runs from line 19 on page 3 through line 8 on page 5, and discusses only Zutshi. This explanation never mentions what teachings from Tsai are being relied upon, and thus fails to meet the PTO requirement of identifying "the relevant teachings of the prior art relied upon".

Further, the rejection fails to satisfy requirement (B). In particular, the explanation of the §103 rejection (from line 19 on page 3 through line 8 on page 5) discusses teachings that the Examiner believes are disclosed in the Zutshi publication, but never identifies any difference between Zutshi and the subject matter of Claim 10, or any difference between Tsai and the subject matter of Claim 10.

Moreover, the rejection fails to satisfy requirement (C), because the explanation of the rejection never identifies any proposed modification of Zutshi that would be needed to arrive at the subject matter of Claim 10.

In addition, the rejection fails to satisfy requirement (D), because the explanation of the rejection never discusses why one of ordinary skill in the art would have been motivated to make any modification to Zutshi in view of Tsai.

Applicants therefore respectfully submit that the §103 rejection of Claim 10 is completely defective, because it fails to satisfy any of the PTO's four specific requirements for a §103 rejection. As a result, Applicants are not able to understand what the rationale for the rejection is supposed to be, and thus are not required to try to respond to the rejection on the merits. Stated differently, the Examiner has failed to meet any of the various different requirements needed to establish a prima facie case of obviousness under §103. Consequently, as discussed in MPEP §2142, "the applicant is under no obligation to submit evidence of nonobviousness". For this

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reason alone, it is respectfully submitted that the pending §103 rejection must be withdrawn, and notice to that effect is respectfully requested.

ZUTSHI DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

In the portion of the Office Action running from line 17 on page 4 to line 4 on page 5, the Examiner refers to lines 51-67 in column 12 of Zutshi, and asserts that this portion of Zutshi discloses "a third CMP process which is an oxide polishing process". At lines 1-4 on page 5, the Examiner goes on to assert that this oxide polishing process includes two successive oxide polishing steps. However, and contrary to the assertion in the Office Action, the indicated portion of Zutshi does not disclose any oxide polishing step. Instead, this portion of Zutshi is disclosing a procedure to remove a barrier layer.

In contrast, the limitations of Applicants' Claim 10 include an express recitation of two separate polishing steps for an oxide material, as follows:

- (1) performing a first oxide polishing step
- (2) rinsing the substrate with DI water;
- (3) performing a second oxide polishing step; and
- (4) rinsing the substrate a second time with DI water.

The portions of Zutshi relied on in the Office Action relate to polishing of (1) a copper material material, (2) residual portions of the copper material, and (3) a barrier layer, none of which constitute an oxide material. In contrast, Applicants' Claim 10 expressly recites two successive polishing steps that are each specific to an oxide material. Consequently, despite the fact that the Office Action fails to adequately explain the basis for the rejection that is supposedly based on both Zutshi and Tsai, it is nevertheless very clear that Zutshi does not teach what the Office Action says it does. Accordingly, it is respectfully submitted that the subject matter of Claim 10 is clearly not taught or suggested by the indicated portions of Zutshi, and notice to that effect is

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respectfully requested. For this independent reason alone, Applicants respectfully submit that Claim 10 is not obvious under §103 in view of Zutshi and Tsai, and notice to that effect is respectfully requested.

THE OFFICE ACTION OFFERS NO MOTIVATION FOR THE PROPOSED COMBINATION

There is yet another independent and compelling reason why Zutshi and Tsai cannot be combined under §103 to reject Claim 10. In this regard, MPEP §2142 provides that:

To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of applicant's disclosure must be put aside in reaching this determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

The MPEP further provides at § 2143.01 that:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". (Emphasis in original).

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Here, as discussed above, the Office Action does not even propose any modification to Zutshi in view of Tsai, much less offer any rationale as to why there would be motivation to make a modification. At lines 4-8 on page 5, the Office Action states that:

... it would be obvious to one [of] ordinary skill in the art to polish and clean the second oxide layer for a second time with the same process as using [sic] in the first oxide layer to form a planar oxide layer and remove the contamination since it is well-known in the art to repeat the same process for multiple effect.

This statement is inconsistent with other portions of the rejection of Claim 10. For example, this statement refers to polishing of first and second oxide layers. However, as discussed above, the Office Action relies on portions of Zutshi that involve polishing of a copper material and polishing of a barrier layer. The Office Action does not rely on any portion of Zutshi that relates to polishing of an oxide layer, much less two different oxide layers. Consequently, in the above-quoted sentence discussing "first" and "second" oxide layers of Zutshi, it is not clear what the Office Action is talking about. Accordingly, for this independent reason alone, it is respectfully submitted that Claim 10 is not obvious under §103 in view of Zutshi and Tsai, and notice to that effect is respectfully requested.

In view of the various different reasons discussed above, it is respectfully submitted that the §103 rejection of Claim 10 based on Zutshi and Tsai is incomplete and defective, and in any event that Claim 10 is not rendered obvious under §103 by Zutshi and Tsai. Claim 10 is thus believed to be allowable, and notice to that effect is respectfully requested.

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Independent Claim 20

Independent Claim 20 stands rejected under 35 USC §103, on the ground that Claim 20 would be obvious in view of Zutshi and Tsai. This ground of rejection is respectfully traversed. In this regard, and as noted above, the PTO recognizes in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Zutshi and Tsai do not establish a *prima facie* case of obviousness under §103 with respect to Claim 20, for the mutually exclusive reasons that are discussed below.

ARGUMENTS PRESENTED IN APPLICANTS' LAST RESPONSE

In the section of the Office Action that bridges pages 8-9, the Examiner offers a reply to the arguments in Applicants' last Response, including a statement that:

Applicant fails to argue that the process limitations in the claimed invention differs from the cited references. Merely argue that the rule of 103 rejection over the MPEP does not make the claimed invention allowable.

In essence, with respect to Applicants' argument that the §103 rejection fails to comply with requirements of the MPEP, the Examiner asserts that this type of argument is not sufficient to establish the allowability of the claims. However, Applicants respectfully that the Examiner's

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In other words, the MPEP establishes a two-step process. The first step must be completed by the Examiner, or else the second step does not apply to Applicants. The first step is that the Examiner must establish a *prima facie* case of obviousness. If the Examiner does so, then a valid §103 rejection is created, and so the second step takes effect and the applicant becomes obligated to submit evidence of non-obviousness. On the other hand, if the Examiner fails to establish a *prima facie* case of obviousness, then the first step has not been met and there is no valid §103 rejection, so the second step does not apply, because Applicants are not required to reply to a rejection that is not valid and thus does not really exist. Stated differently, and contrary to the assertions in the Office Action, if the §103 rejection does not meet the requirements set forth in the MPEP, then the §103 rejection is defective, and the claimed invention is in fact allowable (without any need for Applicants to discuss differences between the claims and the cited references).

THE OFFICE ACTION FAILS TO CLEARLY EXPLAIN THE BASIS FOR THE REJECTION

At lines 15-17 on page 2, the Office Action indicates that Claim 20 is rejected under §103 in view of both Zutshi and Tsai. Then, from line 19 on page 5 through line 12 on page 6, the Office Action provides an explanation of why Claim 20 is rejected. However, this explanation discusses only Zutshi, and never even mentions Tsai. In particular, this explanation of the rejection of Claim 20 (1) does not indicate which limitations from Claim 20 are not found in

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Zutshi, (2) does not indicate where Tsai discloses the limitations of Claim 20 that are not found in Zutshi, (3) does not indicate how teachings from both Zutshi and Tsai would have to be combined in order to meet the limitations of Claim 20, and (4) does not explain why one of ordinary skill in the art at the time the invention was made would have been motivated to modify Zutshi in view of Tsai.

With this in mind, it is respectfully submitted that the §103 rejection of Claim 20 fails to satisfy the PTO's requirements for a §103 rejection. In more detail, MPEP §706.02(j) discusses what an examiner must do in order to establish a prima facie case of obviousness under 35 U.S.C. §103, and includes the following explanation:

35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:

(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,

(B) the difference or differences in the claim over the applied reference(s),

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.

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In the present situation, the §103 rejection of Claim 20 fails to satisfy any of these four requirements, for reasons that are discussed separately below for each of the four requirements.

First, the rejection fails to satisfy requirement (A). In particular, the Office Action states at lines 15-17 on page 2 that the rejection of Claim 20 is based on Zutshi and Tsai, but the ensuing explanation regarding Claim 20 runs from line 19 on page 5 through line 12 on page 6, and discusses only Zutshi. This explanation never mentions what teachings from Tsai are being relied upon, and thus fails to meet the PTO requirement of identifying "the relevant teachings of the prior art relied upon".

Further, the rejection fails to satisfy requirement (B). In particular, the explanation of the §103 rejection (from line 19 on page 5 through line 12 on page 6) discusses teachings that the Examiner believes are disclosed in the Zutshi publication, but never identifies any difference between Zutshi and the subject matter of Claim 20, or any difference between Tsai and the subject matter of Claim 20.

Moreover, the rejection fails to satisfy requirement (C), because the explanation of the rejection never identifies any proposed modification of Zutshi that would be needed to arrive at the subject matter of Claim 20.

In addition, the rejection fails to satisfy requirement (D), because the explanation of the rejection never discusses why one of ordinary skill in the art would have been motivated to make any modification to Zutshi in view of Tsai.

Applicants therefore respectfully submit that the §103 rejection of Claim 20 is completely defective, because it fails to satisfy any of the PTO's four specific requirements for a §103 rejection. As a result, Applicants are not able to understand what the rationale for the rejection is supposed to be, and thus are not required to try to respond to the rejection on the merits. Stated differently, the Examiner has failed to meet any of the various different requirements needed to establish a prima facie case of obviousness under §103. Consequently, as discussed in MPEP §2142, "the applicant is under no obligation to submit evidence of nonobviousness". For this

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reason alone, it is respectfully submitted that the pending §103 rejection must be withdrawn, and notice to that effect is respectfully requested.

ZUTSHI DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

In lines 1-2 on page 6 of the Office Action, the Examiner refers to the portion of Zutshi running from line 66 in column 9 to line 10 in column 10, and asserts that this portion of Zutshi discloses "a first polishing operation on the exposed oxide layer". However, and contrary to the assertion in the Office Action, this portion of Zutshi is not disclosing an oxide polishing step. Instead, this portion of Zutshi is disclosing a procedure to remove some residual copper material from a barrier layer. No oxide material is involved at all.

In addition, in lines 5-6 on page 6 of the Office Action, the Examiner refers to the portion of Zutshi at lines 32-42 in column 10, and asserts that this portion of Zutshi discloses "a second polishing operation on the exposed oxide layer". However, and contrary to the assertion in the Office Action, this portion of Zutshi is not disclosing an oxide polishing step. Instead, this portion of Zutshi is disclosing a procedure to remove a barrier layer.

In contrast, the limitations of Applicants' Claim 20 include an express recitation of two separate polishing steps for an oxide material, as follows:

performing a first polishing operation on the exposed oxide layer using a first slurry;

performing a first rinsing operation of the top surface of the substrate;

performing a second polishing operation on the exposed oxide layer using a second slurry; and

performing a second rinsing operation of the top surface of the substrate.

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The portions of Zutshi relied on in the Office Action relate to polishing of two completely different materials, neither of which is an oxide material, whereas Applicants' Claim 20 expressly recites two successive polishing steps that are each specific to an oxide material. Consequently, despite the fact that the Office Action fails to adequately explain the basis for the rejection that is supposedly based on both Zutshi and Tsai, it is nevertheless very clear that Zutshi does not teach what the Office Action says it does. Accordingly, it is respectfully submitted that the subject matter of Claim 20 is clearly not taught or suggested by the indicated portions of Zutshi, and notice to that effect is respectfully requested. For this independent reason alone, Applicants respectfully submit that Claim 20 is not obvious under §103 in view of Zutshi and Tsai, and notice to that effect is respectfully requested.

THE OFFICE ACTION OFFERS NO MOTIVATION FOR THE PROPOSED COMBINATION

There is yet another independent and compelling reason why Zutshi and Tsai cannot be combined under §103 to reject Claim 20. In this regard, MPEP §2142 provides that:

To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of applicant's disclosure must be put aside in reaching this determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

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The MPEP further provides at § 2143.01 that:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". (Emphasis in original).

Here, as discussed above, the Office Action does not even propose any modification to Zutshi in view of Tsai, much less offer any rationale as to why there would be motivation to make a modification. At lines 8-11 on page 6, the Office Action states that:

. . . it would be obvious to one [of] ordinary skill in the art to polish and clean the second oxide layer for a second time with the same process as using [sic] in the first oxide layer to form a planar oxide layer and remove the contamination since it is well-known in the art to repeat the same process for multiple effect.

This statement is inconsistent with other portions of the rejection of Claim 20. For example, this statement refers to polishing of first and second oxide layers. However, as discussed above, the Office Action relies on portions of Zutshi that respectively involve polishing of a copper material and polishing of a barrier layer. The Office Action does not rely on any portion of Zutshi that relates to polishing of an oxide layer, much less two different oxide layers. Consequently, in the above-quoted sentence discussing "first" and "second" oxide layers of Zutshi, it is not clear what the Office Action is talking about. Accordingly, for this independent reason alone, it is

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respectfully submitted that Claim 20 is not obvious under §103 in view of Zutshi and Tsai, and notice to that effect is respectfully requested.

In view of the various different reasons discussed above, it is respectfully submitted that the §103 rejection of Claim 20 based on Zutshi and Tsai is incomplete and defective, and in any event that Claim 20 is not rendered obvious under §103 by Zutshi and Tsai. Claim 20 is thus believed to be allowable, and notice to that effect is respectfully requested.

Dependent Claims

Claims 1-9, Claims 11-19, and Claims 21-22 and 24 respectively depend from Claim 1, Claim 10, and Claim 20, and are also believed to be distinct from the art of record, for example for the same reasons discussed above with respect to Claims 1, 10, and 20, respectively.

Conclusion

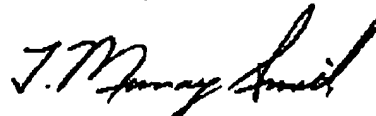
Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

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Although Applicants believe that no fee is due in association with the filing of this Response, the Commissioner is hereby authorized to charge any additional fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone LLP

Respectfully submitted,



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Date: April 11, 2005

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Enclosures: None

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